1873MNRAS..34...84P

Parabolic Elements of the Comet, 1743-4. By Mr. W. E. Plummer.

(*Communicated by Mr. Bishop.*)

The following calculations have all been based upon the reduction of the original observations by Mr. Hind, published in the *Astronomische Nachrichten.* I have likewise adopted the positions of the Sun which Mr. Hind has calculated from Carlini's latest Solar Tables. The difference between Carlini and Le Verrier for that time is very slight.

By using Maraldi's observation of 1743, December 21; Bradley's of 1744, January 24; and the mean of Bradley's and Bliss's observations on February 28, a preliminary orbit was obtained, which served for the corrections of parallax and aberration, and supplied the means of obtaining normal places. It is a curious fact connected with this calculation, that the first approximation to the proportion of the curtate distances of the comet at the first and third observations gave a negative result.

Elements I.

T 1744, March 1·34370 Paris M.T.

	°	′	″	
π	197	11	43·8	M. eq. 1744·0.
☊	45	45	18·3	
i	47	2	55·9	

log. q 9·3467620

Motion direct.

The error of the ephemeris computed from these elements on January 24 was

	C−O		C−O
	′ ″		′ ″
R.A.	+1 25·9	Decl.	−1 1·3,

with which ephemeris all the observations collected by Mr. Hind were compared. It is unnecessary to give the individual comparisons. The errors were grouped into six combinations, which showed that the ephemeris required the following corrections:—

Paris M.T.	R.A. ′ ″	Decl. ′ ″
1743, Dec. 27·5	−0 48·0	+0 20·4
1744, Jan. 8·5	−1 42·3	+0 44·7
Jan. 21·5	−2 11·2	+0 51·7
Jan. 31·5	−1 36·2	+1 17·1
Feb. 15·0	−1 43·8	+0 29·3
Feb. 29·0	−0 19·1	+0 20·0

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For these times 12 equations of condition were formed, which it is hardly necessary to give here; and the application of the method of least squares showed that the necessary corrections to Elements I. were

dT	+	0·0025815	
dq	−	0·0000007	
		′	″
$d\pi$	+	0	4·3
$d☊$	−	0	25·4
di	+	4	22·7

and therefore the improved elements are as follow:—

Elements II.

T March 1·3462815 Paris M.T.

	°	′	″	
π	197	11	48·1	M. eq. 1744·0
☊	45	44	52·9	
i	47	7	18·6	

log. q 9·3467607

Motion direct.

A comparison with the six normal places exhibits the following errors:—

	$d\lambda \cos \beta$	$d\beta$
	″	″
Dec. 27	+19·9	+36·2
Jan. 8	− 5·5	+10·1
Jan. 21	−20·3	−25·0
Jan. 31	+21·6	−20·9
Feb. 15	−34·7	− 6·4
Feb. 29	+21·2	+ 0·1

The Observatory, Twickenham,
1873, *December* 10.

On the Position and Magnitude of the Stars between ε and 5 Lyræ. By C. L. Prince, Esq.

Considerable increase of brilliancy is observable in the largest of the three stars which lie between the two pairs of this asterism. There has been, also, great alteration in the relative position of these stars with respect to the principal components. Admiral Smyth, in his remarks respecting this group, says (*Celestial Cycle*, vol. II., page 428), " Between these pairs and *two thirds* over

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